



Queensland University of Technology
Brisbane Australia

This is the author's version of a work that was submitted/accepted for publication in the following source:

Freeman, James E. (2012) The relationship between lower intelligence, crime and custodial outcomes : a brief literary review of a vulnerable group. *Vulnerable Groups and Inclusion*, 3.

This file was downloaded from: <http://eprints.qut.edu.au/51050/>

© Copyright 2012 J. Freeman

This is an Open Access article distributed under the terms of the Creative Commons Attribution- Noncommercial 3.0 Unported License (<http://creativecommons.org/licenses/by-nc/3.0/>), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Notice: *Changes introduced as a result of publishing processes such as copy-editing and formatting may not be reflected in this document. For a definitive version of this work, please refer to the published source:*

<http://dx.doi.org/10.3402/vgi.v3i0.14834>

The Relationship between Lower Intelligence, Crime and Custodial Outcomes: A Brief Literary Review of a Vulnerable Group

James Freeman

Queensland University of Technology, Kelvin Grove, Queensland, Australia.

e-mail: je.freeman@qut.edu.au

Abstract

The relationship between intellectual functioning and criminal offending has received considerable focus within the literature. While there remains debate regarding the existence (and strength) of this relationship, there is a wider consensus that individuals with below average functioning (in particular cognitive impairments) are disproportionately represented within the prison population. This paper focuses on research that has implications for the effective management of lower functioning individuals within correctional environments as well as the successful rehabilitation and release of such individuals back into the community. This includes a review of the literature regarding the link between lower intelligence and offending and the identification of possible factors that either facilitate (or confound) this relationship. The main themes to emerge from this review are that individuals with lower intellectual functioning continue to be disproportionately represented in custodial settings and that there is a need to increase the provision of specialised programs to cater for their needs. Further research is also needed into a range of areas including: (a) the reason for this overrepresentation in custodial settings, (b) the existence and effectiveness of rehabilitation and release programs that cater for lower IQ offenders, (c) the effectiveness of custodial alternatives for this group (e.g., intensive corrections orders) and (d) what post-custodial release services are needed to reduce the risk of recidivism.

Key words: intelligence, crime, custody, rehabilitation.

INTROUDCTION

Individuals with below average intelligent quotient functioning (otherwise known as IQ) may be considered a vulnerable group for a range of reasons including being scholastically, vocationally and socially disadvantaged. For example, impairments in basic executive processes have been suggested to have a damaging impact on everyday life activities (Herrero, Escorial, & Colom, 2010). Intelligence can also have a pervasive effect on functioning throughout the life course, not just for those who are considered cognitively impaired e.g., IQ of below 70. As a result, there is now a plethora of early intervention programs designed to identify and assist this section of the population successfully transition through the education system into the workforce and/or live independently in the community. However, it may be argued that this group remain vulnerable throughout their life course, and that one particular problem is that they are at a disproportionately high risk of coming into contact with the criminal justice system. In fact, a sizeable body of scientific literature has focused on attempting to determine the strength of the relationship between lower intellectual functioning and risk of committing criminal offences, which will be reviewed below.

Method

Studies that reported on the prevalence of intellectual disabilities in custodial settings between 1960 and January 2012 were searched in electronic databases including PsychINFO and ScienceDirect. Key words were used such as: intellectual disabilities, mental retardation, below average intellectual functioning, prisoners, inmates and detainees. This was supplemented with scanning of reference lists of relevant manuscripts to identify other studies of direct relevance. Studies that involved data collection by trained mental health professionals (e.g., psychiatrists & psychologists) as well as non-allied mental health professionals were included, which may explain some of the heterogeneity in the results.

Intelligence and Crime

While it is acknowledged that a range of personal and environmental factors are likely to influence offending behaviours (e.g., gender, age, peer support, poverty, education, ethnicity, low impulse control, empathy, psychological well-being, personality, etc), the link between low levels of IQ and criminal involvement continues to receive considerable attention (Diaz, Belena, & Baguena, 1994; Jolliffe & Farrington, 2004). In fact, a meta-analysis of research examining the influence of cognitive and affective empathy to offending behaviours found that the relationship between low empathy and offending disappeared after controlling for intelligence and social economic status (Jolliffe & Farrington, 2004). This is not to disregard the concept of empathy, but rather, the ability to understand another person's emotions may be a primary function of intelligence, which ultimately also has links with offending (Jolliffe & Farrington, 2004). More broadly, research that has aimed to examine the origins of offending behaviour (particularly juvenile delinquency) continues to identify low IQ as a predictor of criminal behaviour (Diaz et al., 1994).

A complete review of the predominant theories explaining the relationship between below average IQ and criminal behaviour is beyond the scope of the current paper, as is an in depth analysis of the differences between low average IQ, borderline and mental retardation/intellectual disability. However, it is noted that studies have focused on two specific areas: (a) assessment of low IQ on the seriousness of the criminal career and (b) assessment of the influence of lower IQ on *modus operandi*, which includes planning as well as the seriousness of the offence (Guay, Ouimet, & Proulx, 2005). In regards to the former, there is evidence that lower IQ is associated with delinquency which can naturally set younger individuals on a different life course (Lynam, Moffitt, & Stouthamer-Loeber, 1993). At the very least, it is noteworthy that a significant amount of literature has found delinquent boys have lower levels of functioning intelligence (Culberton et al., 1989; Moffitt, Gabrielli,

& Mednick, 1981). To some extent, it may be argued that delinquency and/or dropping out of school without receiving a sufficient minimal level of education makes such individuals vulnerable in regards to being vocationally disadvantaged. Additionally, it has been proposed that lower IQ (especially poor verbal ability) restricts the probability of academic success at school and this failure in academic achievement increases the likelihood of delinquent acts (Diaz et al., 1994).

A body of research has also demonstrated that individuals with lower IQ levels are more likely to commit more severe (and violent) offences (Crocker & Hodgins, 1997; Hayes & McIlwain, 1988; Martell, 1991). Additionally, evidence exists which demonstrates that criminal offenders have lower IQ's than non-offenders (Feldman, 1993; Herrnstein & Murray, 1994; Wilson & Herrnstein, 1985). In fact, a large body of early research found clear links between lower intelligence and criminal behaviour (Hirschi & Hindelang, 1977; McGarvey et al., 1981; Culbertson, Ferrel, & Gabby, 1989). This may be because of deficits in the "executive functions" of the brain, which are thought to be associated with abstract reasoning and concept formation, as well as sustaining attention and concentration (Moffitt, 1990). Alternatively, it may be expected that individuals with lower intelligence are more vulnerable to engage in reactive-based offences, as they have a reduced capacity to comprehend as well as communicate effectively, particularly to possible interpersonal threats (Welte & Wiczorek, 1999). This issue has also been suggested to be a primary contributor to why individuals with intellectual disabilities are more likely to become victims of crime (Wilson et al., 1996). Furthermore, research has provided preliminary evidence that individuals who are incarcerated are also more likely to suffer from alexithymia, otherwise known as a diminished ability to identify and/or communicate feelings (Kroner & Forth, 1995). At the very least, a meta-analytic study by Morgan and Lilienfeld (2000) found a

relationship between lower executive functioning and antisocial behaviour, with the latter factor strongly linked to criminal activity throughout the literature.

Personal and Interpersonal Factors

However, it is also noted that there is conflicting research, and that the relationship between IQ and criminal offending is not linear (Levine, 2008). It may also not be as strong as once thought (Herrero et al., 2010; Langevin & Curnoe, 2008). One of the primary difficulties in resolving this issue is that intelligence is now accepted to involve a range of different cognitive processes, not least performance and verbal intelligence. In fact, even the well documented “executive processes” are accepted to comprise of a variety of functions including planning, inhibition, switching, updating and monitoring (Herrero et al., 2010). Preliminary research has proposed that IQ differences between offender and non-offender populations may be attributed to verbal reasoning (Blackburn, 1999), while others have suggested it may be due to spatial IQ (Raine et al., 2005).

Others have suggested that the relationship between IQ and crime is clouded by confounding variables, such as motivation levels and that more intelligent individuals are just less likely to be apprehended (Moffitt & Silva, 1988). Additionally, the problem of low IQ and engaging in a reckless manner with little consideration for the consequences may be exacerbated through alcohol consumption (Welte & Wiczorek, 1999). More specifically, research is demonstrating that executive functioning is a crucial moderator of intoxicated aggression (Welte & Wiczorek, 1999). Psychological well-being is another complicating factor, as research demonstrates that lower intellectual functioning is associated with formal thought disorders e.g., schizophrenia (Sheitman et al., 2000) and the complex relationship between psychiatric disorders and increased risk of incarceration has also been well documented in the literature (Teplin, Abram, & McClelland, 1996). Additionally, research

continues to document that individuals who commit offences have often been exposed to emotional and physical abuse through childhood (Hummel et al., 2000), and it may be suggested that children with below average IQ are vulnerable to experiencing a range of unsettling events during psychosocial development. In fact, research indicates that those with an intellectual disability are almost three times more likely (than those without) to also be victims of physical assault, sexual assault and robbery (Wilson et al., 1996). Holland, Clare and Mukhopadhyay (2002) reviewed the literature and concluded that offenders with an intellectual disability tended to be younger males who experienced severe psychosocial disadvantage e.g., high rates of unemployment, other offenders in the family, etc. Finally, overall intelligence can be measured in a range of different formats (e.g., Wechsler Intelligence Scale, Hayes Ability Screening Index [HASI]; the Learning Disabilities in the Probation Service [LIPS]) as can the various subfactors (e.g., executive functioning such as updating, shifting, inhibition). A complete review of the various methods of assessment including comprehensive versus brief procedures are beyond the scope of the current review, although it is likely that these issues increase the level of variability within the literature. For example, the HASI appears more validated than the LIPS (Hayes, 2004) and different assessment approaches focus on different aspects of intellectual functioning. This is also the case with the different forms and categories of below average functioning (e.g., cognitive deficits, impairment, borderline) and it is noted that this issue is particularly complex given that individuals of average intelligence can still have specific learning deficits (Langevin & Curnoe, 2008).

Different Types of Offenders

In an effort to elucidate the complex relationship between IQ and criminal activity, researchers have also attempted to categorise offenders into subgroups. Two large scale studies provided indication that the offence of murder is disproportionately over-represented

among inmates with an intellectual disability (Hayes & McIlwain, 1988; Jones & Coombes, 1990). These researchers have also suggested that those with an intellectual disability are more likely to commit other types of offences, including against property and person such as assault, arson and theft-related offences. In contrast, offences that require a higher level of sophistication (e.g., drugs, false pretences) are less likely to be committed (Hayes & McIlwain, 1988; Jones & Coombes, 1990). While research has focused on violent versus non-violent offences, a group that has recorded a particularly large amount of attention are those convicted of sex offences (Hanson, Scott, & Steffy, 1995). This is because cognitively impaired individuals are over represented in the legal system, both in regards to sexual offence victims as well as sexual perpetrators (Griffiths & Marini, 2000). Research has utilised a number of angles to examine this group, one of the most common being to compare them with non-sex offenders (Guay et al., 2005). But similar to above, such studies have been limited by methodological weaknesses or variability, including the use of different assessment processes and the use of heterogeneous samples (Guay et al., 2005).

On the other hand, some recent research has suggested that sex offenders have lower levels of intellectual functioning than non-sexual violent offenders, particularly in the areas of vocabulary, comprehension, arithmetic, mathematics, letter-number sequencing, performance IQ and total IQ (Guay et al., 2005). In fact, Guay et al. (2005) examined a cohort of incarcerated sex offenders and reported that 35.7% of the sample had IQ scores below 75, with 25.1% scored below 70. It is noted that an IQ of below 70 is often considered indicative of cognitive impairment or retardation (Flynn, 1985). The researchers concluded that sex offenders may have 10 times the percentage with IQ scores below 70 when compared to the normal population (Guay et al., 2005). This finding has more generally been confirmed with other research that has indicated that sex offenders have lower IQs than non-sex offenders (Cantor et al., 2005), and this group are also at a greater risk of recidivism

(Klimecki, Jenkinson, & Wilson, 1994). Research has also begun to examine the emotional intelligence of adolescent sex offenders, with preliminary research indicating this group score higher on aggression and are less clear about their own feelings and have a reduced capacity to manage unpleasant moods (Moriarty et al., 2001). This finding is particularly relevant given that research has indicated that 50 to 80 percent of chronic adult sex offenders commit their first sexual offence as adolescents (Fehrenbach et al., 1986).

Taken together, and while there remains considerable debate in regards to the strength of the relationship between lower IQ and crime (and the confounding variables that mediate this relationship) what remains evident is that there is a disproportionate percentage of very low functioning individuals (e.g., cognitively impaired group) in the prison population compared to the general population (Ho, 1996). Researchers have suggested that this is because this group are more likely to be careless in avoiding detection due to their cognitive impairments (Langevin & Curnoe, 2008). Researchers have also suggested that the appropriate identification of lower IQ offenders is usually ignored during the initial stages such as police interviews (Noble & Conley, 1992). What may yet prove evident is that this group present to prison with a range of competing needs, as preliminary research has suggested that those with more severe intellectual limitations (e.g., retardation) are also more likely to have sustained a brain injury, have a history of substance misuse and/or struggle with adaptive behaviour (Ho, 1996).

Custodial Experiences

Historically, it has been argued that low IQ offenders are apprehended and convicted more easily, and unfortunately, they are also imprisoned for longer (Hermann, Singer, & Roberts, 1998; Mickenberg, 1981). Researchers have noted that this group may naively divulge self-incriminating information and/or yield to police coercion during interviews

(Wertlieb, 1992). Additionally, individuals with lower IQ functioning are vulnerable to misunderstanding the process of court proceedings, as well as understanding plea bargains (McDonald, 1985). What remains evident is that low IQ offenders appear to be disproportionately represented within prison populations, although there has been debate within the literature regarding exact prevalence rates (Hayes, 2004). For example, a number of studies have reported over-representation of intellectually disabled offenders within correctional centres, ranging from 4 – 10% (Petersilia, 1997) to 28% (Murphy et al., 2000). However, it is noted that intellectually disabled offenders in some jurisdictions are appropriately diverted to mental health services or probation such as in the United Kingdom (Mason & Murphy, 2002) although such services are not uniformly available (Petersilia, 1997). Additionally, studies that have utilised trained psychologists and/or psychiatrists to examine offenders have reported lower prevalence rates, which suggests Type II errors may be made in some circumstances. For example, Birmingham, Mason & Grubin (1996) obtained data from psychiatrists and only 1.4% were assessed to have an intellectual disability and a similar study by Ghubash & El-Rufaie (1997) reported a 2.9% rate. However, it is noted that any comparisons between studies remains difficult due to different custodial settings as well as the primary aims of each individual study e.g., assessing intelligence versus psychiatric disorders.

Nevertheless, it has been suggested that this group are vulnerable to manipulation and influence from the prison population who are not intellectually disadvantaged. This can even include entering into homosexual relationships for protection (Billinghurst & Hackler, 1982). In regards to extreme cases, preliminary research has indicated that those murdered in jail are also likely to be of lower intelligence to the perpetrator (Cunningham et al., 2010). As highlighted above and not surprisingly, they also display poor adaptive behaviour capacities (Ho, 1996), which further limits their ability to transition appropriately into a custodial

environment that usually consists of an array of foreign rules and regulations. Researchers have suggested that low IQ individuals are more likely to be impulsive and may not consider the consequences of their actions (Wertlieb, 1991). While it has become increasingly common to house intellectually impaired prisoners in secure custody within prisons (to protect them from the wider prison population), it has been noted that the type of incarceration environment for individuals with low IQ levels varies considerably across jurisdictions (Wertlieb, 1991). Additionally, an intelligence assessment is not always mandatory intake policy and thus this group can remain vulnerable within a custodial environment for an extended period of time. In fact, early research provided evidence that individuals with mild or moderate degrees of disability may in fact never be identified (McAfee & Gural, 1988).

Rehabilitation Programs

The recognition for the disproportionately high number of offenders with low IQs is being reflected in the increase in the number of custodial treatment programs tailored specifically for this group, particularly among sex offenders (Demetral, 1994; Haaven, Little, & Petre-Miller, 1990; Lund, 1992; Swanson & Garwick, 1990). For example within Queensland, the Inclusions Sex Offender Treatment Program has more recently been introduced for individuals with low intellectual ability. A preliminary evaluation by Smallbone and McHugh (2010) reported that the program resulted in improvements across a number of key areas including: lifestyle stability, sexuality, self-regulation, criminality, offence responsibility, etc. However, the sample size for this evaluation was relatively small (and consistent with the wider field of sexual treatment programs), research including longer follow-up periods is still needed to examine the impact upon recidivism.

Additionally, custodial programs are also being developed for lower intelligence inmates who have committed non-sexual offences (Mullin & Simpson, 2007), although there is again limited published research on their effectiveness. This is in part due to the problems associated with undertaking a scientifically rigorous evaluation (e.g., randomised, comparison group) in an applied setting such as a custodial environment. Nevertheless and more broadly, a number of meta-analytic studies into the effectiveness of a range of offender rehabilitation programs have demonstrated that high quality programs can reduce the risk of recidivism (Gendreau, Little, & Goggin, 1996; Lipsey, 1992; McGuire, 2002). Such treatment programs often focus on increasing offenders' ability to understand and express empathy, as a reduced capacity to empathise with victims has been proposed to be a contributor to offending behaviours (Jolliffe & Farrington, 2004). Additionally, preliminary research has suggested that the most effective programs incorporate the three principles of *risk, needs and responsivity* (Andrews & Bonta, 2003). *Risk* relates to identifying high risk offenders, *needs* relates to ensuring the program meets the needs of the offending subgroup and the *responsivity* principle suggests that treatment programs are most effective when they are designed in a manner that maximises therapeutic engagement (Smallbone & McHugh (2010).

All three factors are particularly important for the current focus on this vulnerable group of lower intelligence offenders. In regards to risk, research indicates that priority should be given to high risk offenders, and the above review suggests this low IQ group are at an increased risk of coming in contact with the law. Secondly, the *needs* principle is of particular importance as treatment programs are most effective when they directly target the criminogenic needs of the offending group (Smallbone & McHugh, 2010). These often include risk and protective factors that can be found within individual characteristics as well as offender's social network. In regards to this vulnerable group of low IQ offenders,

particular gains may be found in increasing this group's numeracy and literacy skills, as well as broader social functioning skills. It is noteworthy that literacy and numeracy screening and tutorial programs are increasingly being implemented in a number of custodial settings. Thirdly, there are many barriers to responsivity, not least low intelligence and poor literacy skills (Smallbone & McHugh, 2010). While there is on-going debate in the literature regarding the extent to which programs need to be individualised to increase offender responsivity, there is increasing consensus that lower functioning individuals require more specialised programs to ensure the above three principles are met. As a result, specialised programs are being developed that are increasingly catering for the needs of low IQ offenders, however comprehensive evaluations of these programs are yet to be undertaken and published. This is vital given that preliminary research has demonstrated that lower functioning IQ is associated with treatment attrition (Lueger & Cadman, 1982; Marques, Day, Nelson, & West, 1994), which is particularly concerning given that non-program completion has historically proven to be one of the best predictors of re-offending (Marshall, Anderson & Fernandez, 1999).

Custodial Release

In regards to release from custody, there is also a lack of published research into the relationship between parole success and lower intellectual functioning. Nevertheless, there remains the assumption that probation is more commonly granted to individuals with higher intelligence and greater educational/work history and capability. This is consistent with the above mentioned research which indicates individuals with below average intelligence are imprisoned for longer (Hermann, Singer, & Roberts, 1998; Mickenberg, 1981). A further problem for this vulnerable group is that they are less likely to impress the parole boards with comprehensive and realistic release plans, which clearly articulate how they will avoid re-offending. In regards to the latter, Relapse Prevention Plans (or Safety Plans) have become

increasingly utilised as a mechanism (within parole applications) to demonstrate a high level of insight into the origins of an offence as well as the ability to recognise and avoid high risk situations in the future once they are released from custodial settings. This places individuals with below average intelligence at a distinct disadvantage. While there are external fee-paying services (e.g., lawyers) that provide assistance developing such applications, questions remain regarding the availability of this fee-paying service to this vulnerable group.

In some jurisdictions, it is noted that custodial environments now include Transitions-based courses which provide assistance for those who require additional support and direction when being released from custody e.g., banking, securing employment, etc. In broader terms, Offender Reintegration Support Services are also provided in some custodial environments for individuals who have higher needs transitioning back into the community (particularly offenders with psychiatric histories) although there is again limited published research on the effectiveness of these types of programs. What remains evident is that lower functioning individuals who are incarcerated are likely to require a higher level of personalised supervision once they are released into the community to avoid high risk situations that increase the risk of re-offending. These individuals are often confronted with an array of social challenges when released (e.g., poverty, unemployment), which can arguably place them at an increased risk of re-offending (Borzycki & Baldry, 2003) or experience a poor quality of life (Chung, Cumella, Wensley, & Easthope, 1999). Additionally, further research is clearly needed into this area to not only determine the most effective approaches to deal with below average intelligence prisoners who are incarcerated, but also whether alternative options such as intensive correction orders are more suitable (compared to custodial environments) for some types of offenders e.g., non-violent. There is scant research into this latter issue although anecdotal reports naturally suggest that magistrates and judges are reluctant to incarcerate offenders who are vulnerable to the wider prison population.

IMPLICATIONS FOR FUTURE RESEARCH AND PRACTICE

Taken together, there is a need for further research into a range of different areas. These include: (a) the extent of lower intelligence prisoners' incarceration and the effectiveness of specialised rehabilitation programs, (b) this group's functioning within prison, (c) their likelihood of being approved a community supervision order (e.g., court-ordered parole) and (d) what services are required to reduce the likelihood of recidivism. To further determine whether low IQ has an influence on offending behaviour independently of other factors, variables with a known association to offending behaviour need to be controlled (Jolliffe & Farrington, 2004). Overall, there also remains little contemporary and reliable published research on the proportion of offenders who have clear cognitive impairments (Hayes, 2004; Griffiths & Marini, 2000). There is a need to continue to strive for methodological rigour in further applied research (e.g., randomisation, control groups), despite the obvious difficulties associated with conducting applied research in correctional settings. Hayes' (2004) review of intellectual disability in prison populations revealed a number of short-comings of previous research, including: pre-selection of inmates for assessment, non-random samples, non-representative samples (e.g., volunteers), inadequate test batteries and administration of such tests by non-psychologists. Given that substantial heterogeneity exists between current studies in the field, considerable caution must be used when synthesising the results and drawing conclusions (Fazel, Xenitidis, & Powell, 2008). Prospective longitudinal studies with sufficient follow up periods are ideally suited to elucidate the relationship between IQ and offending, as well as better estimate re-offence rates once this group are released from prison.

In regards to pathway models, there is also the need for further research to investigate how this vulnerable group can avoid initially committing offences e.g., education, community support, etc. It may also be argued that early intervention and treatment programs for low IQ

offenders (particularly in adolescents) are critical in reducing the number of lifelong offenders. Thus, identifying high risk offenders (such as those with below average intellectual functioning) at the earliest possible point when they first come in contact with the criminal justice system seems imperative to increase the likelihood of receiving appropriate treatment to develop the skills and strategies to avoid re-offending in the future.

Tailored Programs

Additionally, and when considering post-offence treatment, a key theme to emerge from this review is the *responsivity* principle and thus the need for correctional programs (either community or custodial) for low IQ individuals to maximise therapeutic engagement. More broadly, the detection of such individuals needs to be followed closely with referrals to appropriate treatment programs to maximise therapeutic engagement and outcomes. Some practitioners have argued that offender rehabilitation programs are becoming increasingly standardised and manualised, which provides little room for tailoring (or individualising) program content and process to match the needs of participants (Marshall et al., 2006). To counter this, there has been further suggestion that programs need to be increasingly flexible and focus on professional responsiveness in order to maximise therapeutic engagement. This argument appears particularly relevant for the current focus group who are likely to require an individualised approach to maximise understanding and retention of core program content. It is noted that researchers have argued that treatment programs that set unrealistic goals that are difficult to achieve (for intellectually impaired offenders) only promotes treatment dropout (Guay et al., 2005). While some level of trade-off will always be evident between following a closely and well-designed program versus professional discretion, there appears reduced value in making a program prescriptive at the expense of responsivity.

More research is also required to determine the content and approach required to maximise therapeutic effectiveness for correctional programs implemented both in the community and in custodial settings. It is noteworthy that at present, no best practice principles or standards exist regarding maximising change in behavioural programs. Additionally, this group is likely to present with a more complex array of needs and post-custody release requirements that can only be achieved through accurate screening and assessment. In regards to sex offenders, and given that this group are actually at a greater risk of committing non-sexual offences compared to sexual offences upon release (Hanson & Morton-Bourgon, 2005), there is a need to assess risk for non-sexual offending as well as general personal functioning levels e.g., numeracy, literacy, etc. There may be benefit from research and program evaluations focusing on whether treatment programs should also target criminogenic needs that are associated with both sexual and non-sexual offending. Given this and in regards to the current focus, there may be merit in treatment programs for low IQ offenders to also address other factors associated with successful functioning in the community (or psychological well being), such as self-esteem, interpersonal skills, etc. These factors can be considered non-criminogenic needs as they may not necessarily directly relate to recidivism, although it is noted that poor psychological functioning (e.g., depression, anger management, etc) are included as risk factors in some actuarial tests e.g., *Sex Offender Needs Assessment Rating (SONAR)*.

CONCLUSION

Taken together, it may be suggested that the two main factors that predominantly influence decision making throughout an offender's interaction with the criminal justice system (e.g., sentence & release eligibility) are: (a) the seriousness of the crime committed and (b) the criminal record of the offender (Gottfredson & Gottfredson, 1988). Both of these important factors can also arguably be influenced by intellectual functioning, which

ultimately places this group in a vulnerable position as they are disadvantaged in regards to adjusting to a long penal sentence and disadvantaged in regards to developing the skills and relapse prevention plan to increase their release eligibility status. While the debate regarding the origins of lower intellectual functioning (e.g., nature vs nurture) is likely to continue, it may be argued that a greater level of consensus now exists regarding the need to develop effective interventions to reduce the likelihood that this vulnerable group are incarcerated as well as ensure their timely release. It is also recognised that the victims of crime are another extremely vulnerable (and important) group which clearly deserve their own review.

However, this literary focus has centred on the need for a better understanding into the link between lower IQ and offending behaviour (in order to develop protective factors throughout childhood and adolescence), as well as the development of evidenced-based interventions to reduce the risk of recidivism for this vulnerable group in the future. The current review indicates that while individuals with lower intellectual functioning are disproportionately represented in custodial settings, further research is needed into a range of areas including: the reason for this overrepresentation, the identification of key risk factors to prevent such overrepresentation, the effectiveness of rehabilitation and release programs that cater for lower IQ offenders, and the development of best practice approaches for both the screening and custodial placement of this vulnerable group.

REFERENCES

- Andrews, D.A., & Bonta, J. (2003). *The Psychology of Criminal Conduct* (Vol.3). Cincinnati, OH: Anderson.
- Billingham, J., & Hackler, J. (1982). The mentally retarded in prison: Justice denied? *Canadian Journal of Criminology*, 24, 341-343.
- Birmingham, L., Mason, D., & Grubin, D. (1996). Prevalence of mental disorder in remand prisoners: consecutive case study. *BMJ*, 313, 1521-1524.
- Blackburn, R. (1999). *The psychology of criminal conduct: Theory research and practice* (4th Ed.). New York: Wiley & sons.
- Borzycki, M., & Baldry, E. (2003). Promoting Integration: The Provision of Prisoner Post-release Services. *Trends and Issues in Crime and Criminal Justice*, No. 263. Canberra: Australian Institute of Criminology.
- Cantor, J.M., Blanchard, R., Robichaud, L.K., & Christensen, B.K. (2005). Quantitative reanalysis of aggregated data on IQ in sexual offenders. *Psychological Bulletin*, 131, 555-568.
- Chung, M.C., Cumella, S., Wensley, J., & Easthope, Y. (1998). A description of a forensic diversion service in one city in the United Kingdom. *Medicine, Science and Law*, 38, 242-250.
- Crocker, A.G., & Hodgins, S. (1997). The criminality of noninstitutionalized mentally retarded persons: Evidence from a birth cohort followed to age 30. *Criminal Justice and Behavior*, 24, 432-454.

Culbertson, F.M., Ferrel, C.H., & Gabby, S. (1989). Pattern analysis of Weschler intelligence scale for children-revised profiles of delinquent boys. *Journal of Clinical Psychology*, 45, 651-660.

Cunningham, M.D., Sorensen, J.R., Vigen, M.P. & Woods, S.O. (2010). Inmate homicides: Killers, victims, motives, and circumstances. *Journal of Criminal Justice*, 38, 348-358.

Demetral, D.G. (1994). Diagrammatic assessment of ecological integration of sex offenders with mental retardation in community residential facilities. *Mental Retardation*, 32, 141-145.

Diaz, A., Belena, A., & Baguena, M.R. (1995). The role of gender in juvenile delinquency: Personality and intelligence. *Personality and Individual Differences*, 16(2), 309-314.

Fazel, S., Xenitidis, K., & Powell, J. (2008). The prevalence of intellectual disabilities among 120000 prisoners – a systematic review. *International Journal of Law and Psychiatry*, 31, 369-373.

Fehrenbach, P.A., Smith, W., Monastersky, C., & Deisher, R. (1986). Adolescent Sexual Offenders: offender and offence characteristics. *American Journal of Orthopsychiatry*, 56(2), 225-233.

Feldman, P. (1993). *The Psychology of Crime*. New York: Cambridge University Press.

Flynn, J.R. (1985). Wechsler Intelligence Tests: do we really have a criterion of mental retardation? *American Journal of Mental Deficiency*, 90 (3), 236-244.

Hayes, S. (2004). Identifying Intellectual Disability in Offender Populations – And What Then? Workshop presented at a Seminar Organised by the Prison Research Project, Liverpool, United Kingdom. Retrieved from the world wide web (30/4/12):

<http://www.qcjc.com.au/research/download/3/research/intellectual-disability-1/identifying-intellectual-disability-in-offender-populations.pdf>

Holland, T., Clare, I.C.H., & Mukhopadhyay, T. (2002). Prevalence of “criminal offending” by men and women with intellectual disability and the characteristics of “offenders”: implications for research and service delivery. *Journal of Intellectual Disability Research*, 46, 6-20.

Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult offender recidivism: What works. *Criminology*, 34(4), 575-607.

Ghubash, R., & El-Rufaie, O. (1997). *Psychiatric morbidity among sentenced male prisoners in Dubai: transcultural perspectives*. *Journal of Forensic Psychiatry*, 8, 440-446.

Griffiths, D., & Martini, Z. (2000). Interacting with the legal system regarding a sexual offence: Social and cognitive considerations for persons with developmental disabilities. *Journal of Developmental Disability*, 7(1), 76-121.

Guay, J.P., Ouimet, M., & Proulx, J. (2005). On intelligence and crime: A comparison of incarcerated sex offenders and serious non-sexual violent criminals. *International Journal of Law and Psychiatry*, 28, 405-417.

Hanson, R.K., & Harris, A. (1998). *Dynamic predictors of sexual recidivism* (Cat. No. JS42-82/1998-01E. ISBN:0662-6709-1). Ottawa: Public Works and Government Services Canada.

Hanson, K.R., Scott, H., & Steffy, R.A. (1995). A comparison of child molesters and nonsexual criminals: Risk predictors and long-term recidivism. *Journal of Research in Crime and Delinquency*, 32, 325-337.

- Haaven, J., Little, R., & Petre-Miller, D. (1990). *Treating intellectually disabled sex offenders: A model residential program*. Vermont: Safer Society Press.
- Hayes, S., & McIlwain, D. (1988). *The Prevalence of Intellectual Disability in the NSW Prison Population: An Empirical Study*. Canberra: Report to the Criminology Research Council.
- Hermann, D., Singer, H., & Roberts, M. (1988). Sentencing of the mentally retarded criminal defendant. *Arkansas Law Review* 41, 765-808.
- Herrero, O., Escorial, S., & Colom, R. (2010). Basic executive processes in incarcerated offenders. *Personality and Individual Differences*, 48, 133-137.
- Herrnstein, R.J., Murray, C. (1994). *The Bell Curve*. New York: Free Press.
- Hischi, T., & Hindelang, M.J. (1977). *Intelligence and delinquency: A revisionist review*. *American Sociological Review*, 42, 571-587.
- Ho, T. (1996). Assessment of retardation among mentally retarded criminal offenders: an examination of racial disparity. *Journal of Criminal Justice*, 24(4), 337-350.
- Hummel, P., Thomke, V., Oldenburger, H., & Specht, F. (2000). Male adolescent sex offenders against children: similarities and differences between those offenders with and those without a history of sexual abuse. *Journal of Adolescence*, 23, 305-317.
- Jolliffe, D., & Farrington, D. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and Violent Behaviour*, 9, 441-476.
- Jones, G.P., & Coombes, K. (1990). *The Prevalence of Intellectual Deficit Among the Western Australian Prisoner Population*. Perth: Western Australia Department of Corrective Services.

Klimski, M.R., Jenkinson, J., & Wilson, L. (1994). A study of recidivism among offenders with an intellectual disability. *Australia and New Zealand Journal of Developmental Disabilities, 44*, 360-361.

Kroner, D.G., & Forth, A.E. (1995). The Toronto alexithymia scale with incarcerated offenders. *Personality and Individual Differences, 19*(5), 625-634.

Langevin, R., & Curnoe, S. (2008). Are mentally retarded and learning disordered overrepresented among sex offenders and paraphilics? *International Journal of Offender Therapy and Comparative Criminology, 52*(4), 401-415.

Levine, S.Z. (2008). Using intelligence to predict subsequent contacts with the criminal justice system for sex offences. *Personality and Individual Differences, 44*, 453-463.

Lipsey, M., W. (1992). Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. In T.D. Cook, H.Cooper, D.S. Cordray, H.Jartmann, L.V.Hedges, R.J. Light, T.A.Louis & F.Mosteller (Eds.), *Meta-Analysis for Explanation: A Casebook*. New York, NY: Russel Sage Foundation.

Lueger, R.J., & Cadman, W. (1982). Variables associated with recidivism and program-termination of delinquent adolescents. *Journal of Clinical Psychology, 38*, 861-863.

Lund, C.A. (1992). Long-term treatment of sexual behavior problems in adolescent and adult developmentally disabled persons. *Annals of Sex Research, 5*, 5-31.

Lynam, D.R., Moffitt, T.E., & Stouthamer-Loeber, M. (1993). Explaining the relation between IQ and delinquency: Class, race, test motivation, school failure, or self control? *Journal of Abnormal Psychology, 102*, 187-196.

Marshall, W., Anderson, D., & Fernandez, Y. (1999). *Cognitive Behaviour Treatment of Sexual Offenders*. Chichester: Wiley.

Mason, J., & Murphy, G. (2002). Intellectual disability amongst people on probation: prevalence and outcome. *Journal of Intellectual Disability Research*, 46, 230-238.

McDonald, W. (1985). *Plea Bargaining: Critical Issues and Common Practices*.

Washington, DC: National Institute of Justice.

Marques, J.K., Day, D.M., Nelson, C., & West, M.A. (1994). Effects of cognitive-behavioral treatment on sex offender recidivism: Preliminary results of a longitudinal study. *Criminal Justice and Behavior*, 21, 28-54.

Marshall, W.L., Marshall, L.E., Serran, G.A., & Fernandez, Y.M. (2006). *Treating Sexual Offenders: An Integrated Approach*. New York, NY: Routledge, Taylor & Francis Group.

Martell, D. (1991). Homeless mentally disordered offenders and violent crimes: Preliminary research findings. *Law and Human Behavior*, 15, 333-347.

McAfee, J., & Gural, M. (1988). Individuals with mental retardation and the criminal justice system: The review from states' attorneys general. *Mental Retardation*, 26, 5-12.

McGarvey, B., Gabrielli, W.F., Bentler, P.M., & Mednick, S.A. (1981). Rearing social class, education, and criminality: A multiple indicator model. *Journal of Abnormal Psychology*, 90, 354-364.

McGuire, J. (2002). Integrating findings from research reviews. In J.McGuire (Ed.), *Offender Rehabilitation and Treatment: Effective Programmes and Policies to Reduce Re-offending* (pp.3-38). Chicester, UK: Wiley.

Moffitt, T.E. (1990). The neuropsychology of juvenile delinquency: A critical review. In M. Tonry, & N. Morris (Eds.), *Crime and Justice*, Vol 12 (pp. 99-169). Chicago: University of Chicago Press.

Moffitt, T.E., Gabrielli, W.F., & Mednick, S.A. (1981). Socioeconomic status, IQ, and delinquency. *Journal of Abnormal Psychology*, 90, 152-156.

Moffitt, T.E., & Henry, B. (1989). Neuropsychological deficit and self-reported delinquency in an unselected birth cohort. *Journal of the American Academy of Child and Adolescent Psychiatry*, 27, 233-240.

Moffitt, T.E., & Silva, P.A. (1988). IQ and delinquency: A direct test of the differential detection hypothesis. *Journal of Abnormal Psychology*, 97, 330-333.

Morgan, A.B., & Lilenfeld, S.O. (2000). A meta-analytic review of the relation between antisocial behavior and neuropsychological measures of executive function. *Clinical Psychology Review*, 20, 113-136.

Moriarty, N., Stough, C., Tidmarsh, P., Eger, D., & Dennison, S. (2001). Deficits in emotional intelligence underlying adolescent sex offending. *Journal of Adolescence*, 24, 743-751.

Mullin, S., & Simpson, J. (2007). Does executive functioning predict involvement in offenders' behaviour following enhanced thinking skills training? An exploratory study with implications for rehabilitation. *Legal and Criminological Psychology*, 12, 117-131.

Murphy, M., Harrold, M., Carey, S., & Mulrooney, M. (2000). A survey of the level of learning disability among the prison population in Ireland. Department of Justice, Equality and Law Reform, Dublin.

Noble, J., & Conley, R. (1992). Toward an epidemiology of relevant attributes. In R. Conley, R. Luckasson and G. Bouthilet (Eds). *The Criminal Justice System and Mental Retardation: Defendants and Victims*. Baltimore: Brookes.

Petersilia, J. (1997). Unequal justice? Offenders with mental health retardation in prison. *Corrections Management Quarterly 1*: 36-44.

Raine, A., Moffitt, T.E., Caspi, A., Loeber, R., Stouthamer-Loeber, M., & Lynam, D. (2005). Neurocognitive impairments in boys on the life-course persistent antisocial path. *Journal of Abnormal Psychology, 114*, 38-49.

Sheitman, B.B., Murray, M.B., Snyder, J.A., Silva, S., Goldman, R., Chakos, M., Volavka, J., & Lieberman, J.A. (2000). *Schizophrenia Research, 46*, 203-207.

Smallbone, S., & McHugh, M. (2010). *Outcomes of Queensland Corrective Services Sexual Offender Treatment Programs*. Queensland: School of Criminology and Criminal Justice, Griffith University.

Swanson, C.K., & Garwick, G.B. (1990). Treatment for low-functioning sex offenders: Group therapy and interagency coordination. *Mental Retardation, 28*, 155-161.

Teplin, L.A., Abram, K.M., & McClelland, G.M. (1996). Prevalence of psychiatric disorders among incarcerated women: Pre-trial jail detainees. *Archives of General Psychiatry, 53*, 505-512.

Welte, J., & Wieczorek, W. (1999). Alcohol, intelligence and violent behaviour in young males. *Journal of Substance Abuse, 10*(3), 309-319.

Wertlieb, E.C. (1991). Individuals with disabilities in the criminal justice system: A review of the literature. *Criminal Justice and Behavior, 18*, 332-350.

Wilson, J.Q., & Herrnstein, R.J. (1985). *Crime and Human Nature*. New York: Simon and Schuster.

Wilson, C., Nettlebeck, T., Potter, R., & Perry, C. (1996). Intellectual Disability and Criminal Victimization. *Trends and Issues in Crime and Criminal Justice*, No. 60. Canberra: Australian Institute of Criminology.